

REMARKS/ARGUMENTS

Claims 12, 13 and 16-21 are pending herein. Claim 13 has been amended to recite the features of dependent claim 15, and claim 15 has been cancelled. In addition, withdrawn method claims 22-31 have also been cancelled hereby. Applicants respectfully submit that no new matter has been added. Applicants also respectfully submit that this Amendment is proper under Rule 116 because the changes made hereby do not create new issues and merely place the application in better condition for appeal, if necessary. Accordingly, entry of this Amendment is respectfully requested.

1. Withdrawn method claims 22-31 have been cancelled hereby. Applicants presently intend to file a divisional application for the non-elected claims, and thus reserve the right under 35 USC §121.

2. Claims 12, 16, 18 and 20 were rejected under §102(b) over McArdle, and claims 13, 15, 17, 19 and 21 were rejected under §103(a) over McArdle in view of Kuramochi. Applicants respectfully traverse these rejections.

Independent claim 12 recites a porous material comprising silicon carbide particles as an aggregate and a silicon nitride binder bonding the silicon carbide particles so as to define pores present between the silicon carbide particles to provide an open porosity of 50% to 75%. A surface of the silicon nitride defining each pore is either free from any columnar silicon nitride, or includes columnar silicon nitride, provided that an amount of columnar silicon nitride having a thickness of more than 2 μm and an aspect ratio of less than 10 is greater than an amount of columnar silicon nitride having a thickness of 2 μm or less or an aspect ratio of 10 or more. Claims 16, 18 and 20 each depend from independent claim 12.

Independent claim 13 recites a porous material comprising, among other things, silicon carbide particles as an aggregate and a silicon nitride binder directly bonded with the silicon carbide particles and bonding the silicon carbide particles with one

another so as to define pores between the silicon carbide particles. The pores have a specific surface area of 1 m²/g or less, and an open porosity of the porous material is 40 to 75%. Claims 17, 19 and 21 each depend from independent claim 13.

Applicants respectfully submit that all claims pending herein define patentable subject matter over McArdle for at least the same reasons explained in the Amendment filed on December 18, 2007, the entire remarks of which are incorporated herein, and for the additional reasons explained below.

The PTO asserted that McArdle teaches “ceramic aggregate particles comprising a plurality of solid particles such as silicon carbide (Par. 0028) bound together by silicon nitride (Par. 0022),” and that in McArdle, the “binding material improves porosity in between the particles (Par. 0035) and therefore must be present between the particles” (Final Office Action, page 2, lines 11-15). Applicants respectfully submit that one skilled in the art would readily recognize that the portions of McArdle cited by the PTO relate to the characteristics of the aggregate particles, not to the overall structure defined by a plurality of these aggregate particles bonded to one another. Moreover, contrary to the PTO’s assertions, paragraph [0035] of McArdle merely teaches that fillers “affect the properties of the ceramic aggregate particles, such as, for example, hardness, porosity level” (McArdle, paragraph [0035], lines 1-3). Again, the general mention of porosity in paragraph [0035] is made with respect to the porosity within the aggregate particles themselves, and Applicants respectfully submit that this porosity is not quantified or otherwise described in McArdle.

In response to the previous argument that McArdle does not disclose a porosity of more than 40%, the PTO asserted that McArdle discloses that “when the material is used as an abrasive product, then the porosity can reach 70%,” citing to paragraph [0111] of McArdle (see Final Office Action, page 6, lines 13-15). Applicants respectfully submit, however, that the PTO has mischaracterized the disclosure of McArdle, at least with respect to the description in paragraph [0111] thereof.

That is, Applicants respectfully submit that paragraph [0111] of McArdle relates to the constitution of a bonded abrasive product, such as the grinding wheel shown in McArdle's Fig. 7, but does not relate to the aggregate particles that are bonded to one another to form the bonded abrasive product. According to paragraph [0111] of McArdle, "bonded abrasive products typically comprise about 3-50% by volume bond material, about 30-90% by volume abrasive material [i.e., the aggregate particles of Fig. 1], up to 50% by volume additives (including grinding aids), and up to 70% by volume pores, based on the total volume of the bonded abrasive product. Typically, grinding wheels have at least 10%, 20%, or even more porosity" (McArdle, page 11, paragraph [0111]).

Applicants respectfully submit that one skilled in the art would readily understand and logically conclude that the "porosity" discussed in the cited portion of McArdle relates to that of the bonded product, not the porosity of the aggregate particles themselves, which are shown in Figs. 1 and 2 of McArdle. Applicants respectfully submit that one skilled in the art would readily understand that these aggregate particles are bonded to one another within the bonded product to form the separate, bonded structure relied on by the PTO in an attempt to assert that McArdle's aggregate particles themselves would exhibit the claimed porosity. Applicants respectfully submit, however, that this line of argument is clearly incongruous, because the otherwise undisclosed porosity within the aggregate particles themselves is not the same as the porosity of a bonded product formed from a plurality of the aggregate particles bonded to one another. The aggregate particles in McArdle simply do not exhibit each and every feature recited in independent claims 12 and 13, particularly with respect to the claimed porosity characteristics, and it is improper for the PTO to assert that McArdle discloses the claimed porosity in conjunction with an entirely different structure.

Applicants respectfully submit that McArdle fails to disclose or suggest each and every feature recited in independent claims 12 and 13 for at least the reasons explained above, and that Kuramochi does not overcome the deficiencies of McArdle.

Accordingly, Applicants respectfully submit that independent claim 12 and 13, and all claims depending therefrom, define patentable subject matter over the applied references, and respectfully request that the above rejections be reconsidered and withdrawn.

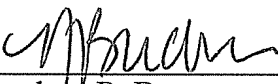
If the Examiner believes that contact with Applicants' attorney would be advantageous toward the disposition of this case, the Examiner is herein requested to call Applicants' attorney at the phone number noted below.

The Commissioner is hereby authorized to charge any additional fees associated with this communication or credit any overpayment to Deposit Account No. 50-1446.

Respectfully submitted,

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Date



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